

REMARKS

Reconsideration of the application is requested.

Claims 1-39 are now in the application. Claims 1-11, 16-36, and 39 are subject to examination. Claims 12-15, 37, and 38 have been withdrawn from examination. Claim 1 has been amended. Claim 39 has been added.

Claim 1 has been amended to even further distinguish the invention from the prior art.

Emphasis has been put on the fact that a temporary junction is made in the first portion of the inlet section and then, **the same temporary junction** is brought into the second portion of the inlet section for a final junction operation. To better express this process of provisionally joining the ends of two consecutive bands in one portion of an inlet section, followed by a definitive joining of the **same ends** in another portion of the inlet section, the Claim 1 has been amended as follows (support is indicated in parenthesis):

Claim 1 (currently amended): A method for managing the feed of a new coil into a continuous inline processing plant of a band-type product, said plant being supplied with successive bands, and including means for controlling the continuous running of the band successively into an inlet section, an upstream accumulator, a processing section, a downstream section and an outlet section, the connection of the tail of a first coil when completely unwound with the head

of a consecutive next coil (see page 4, line 17) being carried out in the inlet section of the plant in two successive stage cycles, respectively a first preparation cycle for preparing the ends, respectively said tail of said first coil and said head ~~ends of both bands~~ said consecutive next coil (see page 8, lines 29-39, or page 9 lines 22-24, page 11 lines 3-4, page 14, lines 16-28), for ~~the~~ their junction thereof and a second junction cycle for joining both facing edges of said ends,

a method wherein the running of the band is stopped or, at least, slowed down in the inlet section for a period of time necessary to carry out all the connection operations, and the processing section is supplied, during the stoppage time, with a band length set aside beforehand in the upstream accumulator for carrying on the process at a normal running speed,

characterized in that joining the facing edges of said ~~the ends of both bands~~ is performed in at least two portions of the inlet section, respectively a first portion and a second portion, between which is located an intermediate accumulator for setting aside a variable band length, and that the time period necessary to perform all the connection operations of ~~both bands~~ said ends is divided into at least two time periods respectively a first time period corresponding to the first preparation cycle and to a first phase of the second junction cycle of the facing edges of ~~both bands~~ said ends, and a second time period corresponding to a second phase of the second junction cycle, said both time periods being

separate by a time interval of variable duration corresponding to the running of the band length set aside in the intermediate accumulator.

The amendments are clearly supported by the passages of the description cited in parenthesis. In particular, the term "consecutive" has been added to the expression "a consecutive next coil" to restrict the invention to the connection of consecutive bands supplied in the form of consecutive coils **at the entrance of the processing plant**. The body of the claim has also been amended by replacing the wording "both bands" by a more precise wording at which it previously referred to, i.e. said ends (tail of first coil and head of consecutive next coil). Consequently, there are no doubts that the same ends (i.e. the tail of the first coil and the head of the consecutive next coil) are worked in two portions of the inlet section. Moreover, one of ordinary skill in the art would also clearly understand that joining two consecutive bands as disclosed at page 13, lines 16-18 of the description:

"The plant represented in Figure 2 enables therefore to share the connection process into two successive time periods carried out respectively in both portions 3 and 4 of the inlet section",

has nothing to do with joining a first coil to a second coil by means of a third coil as interpreted by the Examiner in its Response to Arguments (pages 9-10 of the Detailed Action). Indeed, currently amended Claim 1 clearly refers to "the

connection of the tail of a first coil when completely unwound with the head of a consecutive next coil", i.e. a coil that follows in succession, and without interruption, the first coil.

Consequently, according to currently amended Claim 1, the tail of the first coil is not joined to the head of the consecutive next coil by means of a third coil as taught by Daub, since if it was the case, then the tail of the first coil would not be joined to the head of the consecutive next coil, but to the head (or tail) of another band. In fact, according to the teaching of Daub and if we consider 4 successive coils at the entrance of Daub's processing plant, namely the first coil, the second coil, the third coil and the fourth coil, the outputted band at the exit of Daub's processing plant has successively the band of the second coil, which head is joined with the tail of the first coil, then the band of the first coil, then the junction of the head of the first coil with the tail of the fourth coil, then the band of the fourth coil, and finally the junction of the head of the fourth coil with the tail of the third coil. At the opposite, one of ordinary skill in the art will clearly understand that the process disclosed by currently amended Claim 1 does not change the order of the successive coils at the exit of the processing plant, since each coil is joined to the preceding coil in two portion of the inlet section.

Under the heading "Claim Rejections – 35 USC § 103" on page 3 of the above-identified Office Action, claims 1-10 and 16-36 have been rejected as being

obvious over U.S. Patent No. 2,662,271 to Greenberger in view of U.S. Patent No. 3,365,144 to Daub under 35 U.S.C. § 103.

As acknowledged by the Examiner, currently amended Claim 1 is not anticipated by Greenberger (see page 4 of the Detailed Action). Applicant will now show that currently amended claim 1 is also not anticipated by Daub.

Currently amended claim 1 requires:

"joining the facing edges of said ends (i.e. **tail of first coil and head of the consecutive next coil**) is performed in at least two portions of the inlet section, respectively a first portion and a second portion, between which is located an intermediate accumulator for setting aside a variable band length, and that the time period necessary to perform all the connection operations of said ends is divided into at least two time periods respectively a first time period corresponding to the first preparation cycle and to a first phase of the second junction cycle of the facing edges of said ends, and a second time period corresponding to a second phase of the second junction cycle, said both time periods being separate by a time interval of variable duration corresponding to the running of the band length set aside in the intermediate accumulator."

Indeed, Daub does not disclose the above-mentioned part of currently amended claim 1, in particular, it does not disclose or suggest **"joining the facing edges of said ends in at least two portions of the inlet section"**, i.e.

joining an edge of the tail of the first coil with an edge of the head of the consecutive next coil, said edges being facing edges, **in at least two portions of the inlet section** as it would be understood by one of ordinary skill in the art, and as supported by the description at page 14, lines 16-17, or at page 16, lines 6-7. Indeed, according to Daub, the facing edges of the tail of a first coil and the head of a consecutive next coil are not joined in at least two portions of the inlet section, since Daub discloses:

"the entering front end is joined to the rear end of the other strip by means of welding that is not subject to reworking and thereby serves essentially as tack welding during the passage through the processing line" (col. 2, lines 16-20).

Consequently, since the welding is not subject to reworking, the connection of two consecutive coils according to Daub is realized at only one place of the processing line and nothing discloses or suggests realizing the junction in at least two portions of the inlet section. As previously shown, Daub only teaches the junction of two consecutive coils (coil  $n$  with coil  $n+1$ ) at one place of its processing plant, followed by the junction of two **non-consecutive** coils (i.e. coil  $n$  with coil  $n+3$ ) at another place of Daub's processing plant. In other words, the welding operations described by Daub are realized on two different pair of band ends that are joined together. Effectively, a head and a tail of two bands are joined by the welding machine 5, and then other head and tail of bands are

joined by the welding machine 12, whereas, in the present patent application, the **same** head and tail of two **consecutive** coils are joined into two phases:

**"joining facing edges of the tail of the first coil with the head of the consecutive next coil in at least two portions of the inlet section".**

Consequently, Daub does not teach the tail of a first coil and the head of the consecutive next coil joined at two different places in the inlet section of the processing line.

Moreover, no separation into two phases of the junction cycle is disclosed in Daub. On the contrary, Daub discloses a unique joining operation which is **not** subjected to reworking. Of course, Daub discloses two welding places (welding machines 5 and 12), each dedicated to one junction operation, but for each of theses welding places, the welding operation is not subjected to reworking (col. 3, lines 46-48) and consequently, not separated into two phases. In conclusion, the process for joining the ends of two coils as described by Daub (see col. 3, lines 11-63) has nothing to do with separating a junction cycle into two phases with setting aside a variable band length in an intermediate accumulator. It is thus submitted that the currently amended claim 1 is not anticipated by or suggested by Daub.

Applicant will now show that the currently amended claim 1 is not suggested by Greenberger and Daub. It is submitted that Greenberger is the closest prior art, since Greenberger describes a method for joining together successive bands in

a continuous in line processing plant. As stated above, the features disclosed by currently amended claim 1 are not described by Greenberger.

The objective problem solved by these features is: how to enable the continuous processing of coils of different sizes, in particular several successive short coils, successively fed in a continuous in line processing plant (see page 7, lines 2-26), or in other words, how to reduce the stoppage idle time of the unwinding of the coils in the inlet section.

Facing this problem, one of ordinary skill in the art finds no solution in Greenberger, since the processing plant describes by Greenberger is unable to process successively several short coils. Moreover, nothing teaches or suggests in Greenberger to "break down the junction cycle into two separate phases, with setting aside a variable band length in an intermediate accumulator" (description, page 8, lines 15-17).

It is submitted that one of ordinary skill in the art would not look to Daub for a solution of the problem for the following reason. Contrary to the Examiner's opinion, applicant maintains that the processing plant described by Daub does not belong to continuous in line processing plants, to which the present patent application refers in the preamble of claim 1. It is known that, for one of ordinary skill in the art, a continuous in line processing plant is a plant characterized by a **continuity** of the band from the entrance to the exit of the processing line. To the contrary, Daub discloses two distinct processing plants:



a first processing plant for the sections located before the mandrel 6, and a second processing plant for the sections located after the mandrel 9. Between the mandrels 6 and 9, there is a **discontinuity** of the band, since the band of the first processing plant is wound into a coil that will then feed the second processing plant. Thus, the band does not move continuously from the first processing plant to the second processing plant. The result is that the order of the joined bands is inverted and mixed at the exit of the processing plant (for example, at the entrance, the coils have the order 1-2-3-4 and at the exit, once joined, they have the order 3-4-1-2). Such a mixing of the coils may cause problems for the tracing of the bands (for retrieving for example a defect in a band) and would never have been considered by one of ordinary skill in the art. Consequently, one of ordinary skill in the art who wants to solve the problem of enabling the processing of coils of different sizes, in particular several successive short coils, successively fed in a continuous in line processing plant would not use the teaching of Daub since the running of the band is stopped at the mandrels and the order of the bands inverted.

Even if one of ordinary skill in the art would have considered the teaching of Daub for solving the above-mentioned problem, she/he would never have found a solution based on "breaking down the junction cycle into two separate phases, with setting aside a variable band length in an intermediate accumulator" (description, page 8, lines 15-17), since the junction of the consecutive coils (coil n with coil n+1) and the junction of the non-consecutive coils (for example coil n with coil n+3 in the case of 4 coils as stated above)

described by Daub's teaching are definitive/final junctions. Thus, Daub does not suggest that "joining the facing edges **of said ends** (i.e. **tail of first coil and head of the consecutive next coil**) is performed in at least two portions of the inlet section, respectively a first portion and a second portion, between which is located an intermediate accumulator for setting aside a variable band length". Such a feature allows, while reducing the stoppage idle time, to set aside a sufficiently long band length in a continuous in line processing plant while working with short coils of various lengths at high running speed in order to supply the processing section with a constant band running speed during the stoppage time in the inlet section (see page 6, lines 17-22 and page 7 lines 15-20).

Moreover, if we consider the objective problem, i.e. reducing the stoppage idle time for enabling the processing of several short coils characterized by various band lengths feeding the continuous in line processing plant, one of ordinary skill in the art will find that Daub is unable to reduce the stoppage idle time while processing such coils with various band lengths for the following reasons. First of all, if we consider the Daub processing plant at its starting step (i.e. empty of band) and that several short coils with different bands lengths are to be processed at the entrance of Daub processing plant, then the first step will be to connect all these short coils into one starting coil so that the length of the starting coil reaches a convenient/predetermined band length, the band being reeled on the mandrel 6 before being processed in the band processing part of Daub processing plant. During the time of connection of the short coils, no

band is processed by Daub, since the mandrel 9 is empty. The solution proposed by Daub is thus to combine short coils in a bigger starting coil that is automatically brought via a rotation of the twin reel 7 at the entrance of the processing part of Daub's installation (see Col. 3, lines 70-75). Consequently, it does not reduce the stoppage idle time, but cumulates it at the start of the processing of short coils. Secondly, Daub does not solve the problem, but only displaces it at the entrance of the welding machine 12. In fact, processing several successive short coils may lead to have mandrel 9 (in front of the processing part of Daub's installation) and looping pit 14 empty before a convenient band length is reached on the mandrel 6. In this case, the running of the band is stopped in the processing line (since the line is not continuous). Consequently, Daub does not solve the objective problem, since variations in band lengths of short coils may give rise to a stoppage of the running cycle due to the "empty" looping pits 16, 17 that are no more filled with band. Thus, one of ordinary skill in the art would find no solution or suggestions within the teaching disclosed in Daub's invention.

Consequently, it is submitted that currently amended Claim 1 is not suggested by Greenberger and Daub.

Moreover, the Examiner also alleges that the mandrels act as accumulators. Applicant respectfully disagrees. First of all, applicant cannot simply replace the device comprising mandrels 6 and 9 by a conventional accumulator since there is a discontinuity of the band, and secondly, applicant will show that the

mandrels do not act as accumulators. An accumulator is a device located in a continuous in line processing plant between the entrance of the successive bands, and the exit of the final band product, and that is able to accumulate a length of said band product for differentiating the speed of the band that is located before the accumulator, from the speed of the band that is located after the accumulator, without interrupting the continuity of the band. The mandrels disclosed by Daub are unable to achieve such features, and it is thus submitted that assimilating mandrels and accumulator is incorrect. Consequently, it is also not correct to pretend that Daub discloses "an intermediate accumulator for setting aside a variable band length" that separate two portions where the junction of two consecutive coils is processed.

The invention as defined by claim 1 is not suggested by Greenberger and Daub.

Under the heading "Claim Rejections – 35 USC § 103" on page 8 of the above-identified Office Action, claim 11 has been rejected as being obvious over U.S. Patent No. 2,662,271 to Greenberger and U.S. Patent No. 3,365,144 to Daub and further in view of U.S. Patent No. 4,513,490 to Sendzimir under 35 U.S.C. § 103.

Applicant believes that the invention as define by claim 11 would not have been suggested for the reasons given above with regard to the deficiencies in the teachings in Greenberger and Daub.

Claim 39 has been added to even further distinguish the invention from the prior art. Support for new claim 39 can be found by referring to page 6, lines 17-22 of the specification. Claim 39 requires running the band at a normal running speed of 400 m/min to 600 m/min.

Greenberger discloses that looping pits 18 and 27 serve as accumulators. This kind of accumulator is an essential feature of the invention disclosed by Greenberger, since it allows the band to by-pass the pit over the movable conveyor table (see col. 3, lines 45-48). However, this kind of pit, in which the band is accumulated forming some loops, is not compatible with the high running speed of the bands of the actual processing plants (400 – 600 m/mn). Consequently, the features disclosed in Greenberger are definitely not compatible with a running speed of 400 m/min to 600 m/min. The same reasoning is applicable to Daub, which discloses a processing plant configuration that is not compatible with a high running speed.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art. The dependent

claims are believed to be patentable as well because they all are ultimately dependent on claim 1.

In view of the foregoing, reconsideration and allowance of claims 1-11, 16-36, and 39 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

The fee in the amount of \$52.00 has been enclosed for presenting one additional dependent claim.

Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stermer LLP, No. 12-1099.

Respectfully submitted,

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